

Hybrid forms of energy

Business



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An alternative fuel automobile is an automobile that is powered by a fuel save for traditional fossil fuels (diesel or petrol). Alternative fuel refers to any other method of running an automobile other than diesel and petroleum.

As the economy grows, the energy demand increases as the products and equipments we own increases in number and as we insist on added functionality from new appliances (Sperling and Deborah 42). This therefore calls for good quality statistics to help us understand the underlying trends in energy availability and consumption given that our energy uses has a major impact on our environment. Owing to a combination of increasing fuel prices and environmental laws that are becoming tighter; particularly in California, and the likelihood of further greenhouse gas emissions restrictions, work on alternative fuels and energy systems for automobiles is becoming a high priority for automobile makers and governments globally (Alternative-Fuel Vehicles Getting Most Attention 23). Hybrid vehicles make a more efficient use of diesel or petroleum fuel through highly developed expertise in the electric battery and generator/ motor. Honda Insight was the first hybrid car available for sale in the U S.

It was achieving about 3. 4 liters per 100 km (70 miles per gallon). Other research efforts in alternative fuels focus on developing alternative fuel combustion modes such as HCCI and GDI, and even the compressed air potential energy (Sperling and Deborah 43). There were approximately 32 million advanced technology and alternative fuel vehicles on roads globally between 2008 and 2009, representing around five percent of the global automobile fleet. This alternative fuel automobile is mainly made up of: Most

hybrid cars alternate between a gasoline-powered combustion engine and a battery-powered electric motor.

The overall concept behind hybrid technology is that less gasoline is consumed, because the motor is mostly or partially powered by a battery. In theory, hybrid cars produce fewer emissions than standard gasoline-powered cars. The emissions created by burning fuel—most prominently carbon dioxide gases—are widely believed to contribute to global warming.

Consequently, many environmentalists have celebrated the recent popularity of hybrid vehicles (Hybrid Vehicles). 2.

1 Hybrid cars entry into US market Since the entry of hybrid cars in the United States market in 1999, they have become more and more popular. About 350, 000 hybrid vehicles were sold in the United States in 2007 alone, with many more being sold in Europe and Japan (Hybrid Vehicles). Hybrid vehicles are expected to even become increasingly popular in the future. United States huge consumptions of gasoline become a concern in the 1970s. This concern was precipitated by the 1973 energy crisis (Hybrid Vehicles).

During the Yom Kippur War in 1973, major Middle East oil-producing nations vowed not to export any oil to Israel and its allied nations, including the United States. As a result, oil and gasoline prices skyrocketed while supplies fell in the U. S. Although the embargo was lifted in March 1974, the effects were felt all through the decade. This energy crisis ultimately led automobile makers to design smaller, low fuel consuming cars. This challenge also

revitalized interest in electric powered vehicles, which do not use fossil fuel at all (Hybrid Vehicles).

Global warming also became a growing concern in the whole world and especially in America in the late early 1990s. People realized that the earth is increasingly becoming warmer than it would have been due to an increase in greenhouse gases and emissions from fuel combustion which releases carbon dioxide (CO₂). Some consumers of gasoline articulated a concern and willingness to purchasing vehicles that emitted a reduced amount of destructive greenhouse emissions, such as carbon dioxide. 3. Alternative vehicle fuels The list of alternative motor fuels is long and can be categorized into single fuel source and multiple fuel sources. The most promising alternative energy is biofuels and electricity³.

1 Biofuels use in US Both methanol and ethanol have been use as an alternative automotive fuel. While both methanol and ethanol can be obtained from gasoline or natural gas, ethanol more considered as a renewable fuel, because is easily extracted from starch or sugar crops and other crops such as grain, sugarcane, lactose or even sugar beets (Hunt 86). In the U S, California led the sustainable fuel alternatives research with interest in methanol. A new Ford FFV Taurus model was designed in 1996, which was fully powered either by ethanol or methanol blended with petrol. This model was the first production commercially as E85 ford FFV (Truett 22).

4. The Future of alternative fuel vehicles and hybrid cars and fuels Alternative fuel vehicles and hybrid cars have gained recognition of late. There is a possibility that their use will overtake petrol/diesel cars overtime. Alternative

fuel vehicles and hybrid cars are increasingly becoming affordable; most hybrids cars cost around 30 thousand dollars, which is close to the general average price of a new car of 28 thousand dollars (Federal Trade Commission). It is predicted that most vehicles on our road will be hybrids of some kind, within a few decades.

However, critics say that such a development is not likely. They argue that there is a certain stigma that is still attached to alternative fuel vehicles and hybrid cars- in particular, there is a believe that alternative fuel cars and hybrid cars are not real vehicles, they are just objects of luxury. As well, they point out that there is too much criticism of alternative fuel vehicles and hybrid cars -from all sides of the political arena-for the vehicles to achieve the much needed acceptance. One criticism of alternative fuel vehicles and hybrid cars is that the base prices of these vehicles tend to be too costly for the average Americans. Even proponents concede that the average prices of the alternative fuel vehicles and hybrid cars are basically higher than those for other vehicles. But they believe that this price differences can be quickly recouped because drivers' of hybrid and alternative fuel vehicles spend far less on fuel.

Supporters also admit that hybrid and alternative fuel vehicles cars are not powerful as conventional vehicles. Proponents argue that many hybrid and alternative fuel vehicles are equal to gasoline-only cars in reality in terms of acceleration, speed and handling-a protest against the " golf cart" stereotype in the mid-1990s that dogged electric automobiles when they were introduced to the U. S. market. 5.

Impact of alternative fuel vehicles and hybrid cars and fuels on public Transportation sector

The public transportation sector consumes a bulk of the gasoline in U. S. Total transport consumption currently represents almost two thirds of total gasoline consumed in the nation and approximately a quarter of the nations total energy consumption. Each day, in the United States vehicles guzzle about 15 million barrels of gasoline. This figure is projected to rise to 20 million barrels per day (Energy Information Administration- EIA). To address this trends which have been a concern for a period of time, some measures have been introduced to either reduce gasoline use or to have more diversified fuels in this sector.

Other measures taken include introduction of tax incentives, alternative fuel automobiles mandates, and legislations to enhance automobile fuel efficiency. Congress passed the Energy Policy Act (EPACT) in 1992, which, sought to substitute at least ten percent of the estimated gasoline consumed by cars in 2000 and 30 percent by 2010 with alternative fuels-such as methanol, ethanol, liquefied natural gas, compressed natural gas, liquefied petroleum gas, and electricity. To achieve these goals, federal tax deductions and credits meant at encouraging the use of alternative fuel vehicles and fuels were established. State governments, Federal agencies, and private consumers have increased the purchase of a number of hybrid and alternative fuel vehicles. However, Hybrid and alternative fuel consumption in the automobiles remains relatively low despite these efforts.

6.

Purchases of alternative fuel vehicles and fuels remain limited

The progress made in increasing the numbers of hybrid and alternative fuel vehicles in the

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transport sector remains relatively low. The use of hybrid and alternative fuels, relative to petroleum, diesel and conventional fuel vehicles shows little improvement. For instance, alternative fuel automobiles accounted for about 0.4 percent or 1 million of all vehicles in the U S in 1999; according to EIA's estimates. It was also estimated that alternative fuels consumption was about 354 million gallons of petroleum or about 0.

2 percent of total fuels consumption by transport sector in 2000. However, the consumption of alternative energy has improved in absolute scale since 1990s, but its comparative share in total fuel consumption in transport sector has remained relatively small. 7. Fundamental economic impediments hinder the acquisition of alternative fuel Vehicles and fuel Various barriers have impeded the public's purchase of alternative fuel vehicles and alternative fuels use in US. The most notable of these hindrances are: The comparatively low price of gasoline and diesel-oil prices are not yet high enough to provoke many people to relinquish their conventional petroleum and diesel consumption in favor of alternative fuel and automobiles.

For instance, EIA performed an analysis which established that even if oil prices were doubled, it would not be significantly enough to augment the market consumption for alternative fuel. Moreover, an entire auto-manufacturing system and refueling infrastructure dedicated to conventional fuel has been established for long and has become so developed and entrenched. However, the alternative fuel refueling infrastructure is insufficient. In addition to poor alternative fuels refilling infrastructures, the cost of providing some alternative fuels at existing gasoline refueling stations is high, thus reducing the investors' willingness to include the <https://assignbuster.com/hybrid-forms-of-energy/>

alternative fuel refilling facilities. For instance, it costs approximately \$300,000 to build compressed natural gas refilling facility-apparently more than the cost of gasoline refueling stations (Alternative fuel vehicles and technology 43).

All together, the alternative fuel refueling stations scarcity makes it quite inconvenient to obtain alternative fuels, which sequentially puts off the public from buying the alternative fuel vehicles. Certain alternative fuel vehicles cost relatively higher. On average, alternative fuel automobile are more costly than conventional vehicles. This reduces the general public incentive for their purchase them. These costs vary by type of car, or instance, a car that runs on compressed natural gas costs between 3,000 dollars to 5,000 dollars more than the same conventional version. The price of an electric powered car ranges from the low 30,000 dollars to about 40,000 dollars.

The alternative fuel vehicles often cost more than the conventional fuels vehicles because their demand is not enough to achieve economies of scale in their manufacturing. 8. Tax Incentives to promote the use of alternative fuel fuels and vehicles To promote alternative fuels and vehicles use in the public transportation sector, the US Congress has enacted certain tax incentives, including federal credits and tax exemptions, and deductions (Bruette 273). So far, alternative fuels and alternative fuels vehicles have not made much of an impression in the conventional vehicle and fuel dominated America mainly because of the elementary economic and financial hitches just discussed. Any considerable increase in the use of hybrid and alternative motor fuels and vehicles in public transit by the general public and

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government vehicles will depend on two key factors: First, a remarkable and unrelenting increase in the price of conventional fuels and secondly impressive incentives that are above the current incentives levels, in order to ease the cost of using alternative vehicles and fuels in public transit and government vehicles. These incentives would need to be sustained for sometime- until the number of alternative fuel vehicles attains the level necessary to sustain an economic infrastructure of its own.